

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
(Case No. 04-870)

In the Application of:	)	
	)	
Peter Clive Bridges, et al.	)	Examiner: C.T. Ostrup
	)	
Serial No.        10/511,766	)	
	)	Group Art Unit: 3771
Filed:            October 19, 2004	)	
	)	Conf. No. 6029
Title:  Respirator Assembly	)	

**REPLY TO THE EXAMINER'S ANSWER**

Mail Stop Appeal Brief – Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

This is a Reply to Examiner's December 8, 2009 Answer in the above-identified Appeal.

**I.        THE REAL PARTY IN INTEREST**

The real party in interest of this pending application is QinetiQ Limited which is the owner by Assignment of the above-identified U.S. patent application.

**II.       RELATED APPEALS AND INTERFERENCES**

There are no Appeals or Interferences related to the above-identified U.S. Patent Application.

**III.      STATUS OF THE CLAIMS**

This application contains 7 claims. Claims 1-7 remain pending in the application, stand finally rejected, and are the subject of this appeal.

#### **IV. RESPONSE TO THE EXAMINER'S ANSWER**

In order to keep this Reply succinct, the Board is directed to the Appeal Brief which carefully presents Applicant's positions in favor of claim patentability and provides a thorough discussion of the invention. The additional claim obviousness positions and arguments raised by the examiner in the Answer are rebutted below.

##### **A. The Claim Objection Issue**

The examiner takes the position that the issue regarding the objection to the specification for failing to provide proper antecedent basis for a term used in the claims is not an appealable issue but instead is a petitionable issue. As a result the examiner maintains that the issue is not properly before the Board in this Appeal.

The Applicant believes that the examiner's position is correct and notes that MPEP Section 1201 indicates that the Board does not have jurisdiction over petitionable issues. However, if the Board disagrees and chooses to exert jurisdiction over the specification objection, then Board should rule in favor of the Applicant for the reasons raised in Applicant's Appeal Brief. In addition, Applicant understands after conferring with the examiner that the outstanding objection can be dealt with on remand should the Board overrule the examiner's obviousness rejection of one or more application claims.

##### **B. Response To The Examiner's Answer**

###### **1. All claims are non-obvious because the examiner's recited motivation for combining the references is illogical**

Claims 1-7 are non-obvious and patentable because the motivation cited by the examiner for combining the Quilter and Tischer references and/or the resulting combined device are illogical. First off, the examiner's recited motivation for the combination of references is based upon a mis-interpretation of the Tischer reference resulting in a failure by the examiner to establish a *prima facie* case of obviousness. In addition, even if one skilled in the art at the time of the invention combined the references as the examiner suggests, the result would not be the claimed invention.

**a. The examiner's recited motivation is based upon a mis-interpretation of Tischer**

The examiner's obviousness rejection cannot be sustained because the examiner's recited motivation for modifying the Quilter device to make it separable is illogical because Quilter does not need to be separable to provide the recited benefit.

The Examiner repeats (twice) in the Answer the non-sequitur that:

"it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Quilter in order to make the subassemblies separable *for the purposes of preventing direct exposure of wearer's head to high heat environment*" (emphasis added).

At page 9 of the Answer the examiner elaborates by citing Col. 2, lines 35-39 of Tischer for "clearly teach[ing] the desirability of separable elements that can be detachably connected and continue to operate in a manner that prevents exposure of the user to high heat environment. (See page 9 of the Examiner's Answer). Upon considering the reference as a whole, it is clear that Tischer, at the cited column 2, lines 35-39, discloses the device performs the recited function only when the hood and face mask are "connected". Therefore, the cited extract of Tischer would only have suggested to one skilled in the art at the time of the invention that in order to perform the recited function the elements of Quilter should remain connected and not that they should be made separable for this reason. Indeed, the Quilter device – without modification - performs the recited function - preventing direct exposure of the head of the wearer to a high heat environment when worn. Clearly, the motivation cited by the examiner for combining Quilter and Tischer is illogical and, as a result, the examiner's obviousness rejection of claims 1-7 must be rejected by the Board.<sup>1</sup>

The Examiner cites *In re Dulberg* for the proposition that "the separation of elements, where removability would be desirable, is a design consideration within the skill in the art." (See page 9 of the Answer). However, the examiner cites *In re Dulberg* for its ultimate holding

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<sup>1</sup> The Examiner alternatively refers to a potential "fiery crash" as a reason why protection from a high heat environment may be required by a wearer of Quilter's device. (See Answer at p. 9). While protection from a high heat environment would be desirable in such a crash, that doesn't alter the fact that such protection would already be provided by the unmodified, sealed Quilter device when the device is worn. The same holds true for the Tischer device when it is worn as intended.

without regard for the factual inquiry made by the court in reaching its conclusion. *In re Dulberg* appears to stand for the proposition that an examiner can demonstrate that it would be obvious to make two fixed structures of the prior art separable by providing factual evidence that (1) the fixed element(s) are of the type that one skilled in the art would understand are readily separable; and (2) that there is some reason at the time of the invention that would have motivated the skilled person to make the elements separable. *Cf In re Dulberg*, 283 F.2d 522, 129 USPQ 348 (CCPA 1961).

In *Dulberg*, the court held that it would be obvious to make a press fit cap removable if it could be shown that it would have been desirable for any reason to obtain access to the space covered by the cap. *Id.* Here the examiner has failed to demonstrate that the fixed elements of Quilter that the examiner deems readily separable are the type of elements that one skilled in the art would consider to be readily separable. Indeed, the opposite is the case. Quilter discloses that the frontal mask 25 is welded by vulcanization to cover 15 to form a pressure tight seal. (See Quilter at col. 2, lines 63-68). Vulcanization is a process that forms a permanent joint and the examiner has not demonstrated that this is a type of sealed connection that could be made to be separable if necessary.

**b. The combination of Quilter and Tischer would not result in the claimed invention**

The Applicant argued, beginning at page 11 of the Appeal Brief, that all claims were non-obvious and patentable because one skilled in the art at the time of the invention would not combine the references as the examiner has and because references teach away from the examiner's combination. The examiner rebutted Applicant's arguments first by taking the position that the combination of references is proper. Additionally, the examiner suggested that the Applicant's teaching away argument is meritless because it merely recites differences between the prior art devices.

As set out in more detail below, the Applicant's patentability positions are more compelling than the examiner characterizes them in his Answer. Even if it was accepted for the sake of argument both that Tischer teaches the desirability of a separable face mask and hood and that it would be obvious to apply this teaching to Quilter (which is denied in view of Quilter's

teaching to connect his sub-assemblies together permanently), it does not logically follow that an assembly in accordance with Applicant's claim 1 would result. Moreover, the Applicant's teaching away position must be based upon differences between the prior art references, but the differences, as noted below, would be understood by one skilled in the art at the time of the invention to teach away from the combination of references propounded by the examiner.

**i. The combination would not result in a device that includes the claimed seal associated with the first sub-assembly**

Independent claim 1 is directed to a respirator assembly that includes a first-sub assembly having a seal adapted to seal against the periphery of the user's face when worn. Claims 1-7 are non-obvious because the combination of Quilter with Tischer would not logically result in a device that includes this claim feature. Instead, the combination would suggest a device where the claimed seal is associated with the second sub-assembly.

Tischer discloses a device that includes a first sub-assembly and a detachable second sub-assembly. In Tischer, the seal adapted to seal against the periphery of the user's face when worn is seal member 123 in Figure 13 which is part of the mask 112 ("second sub-assembly" in terms of Applicant's claim 1) and not part of the hood 113 ("first sub-assembly" in terms of Applicant's claim 1). Quilter discloses a unitary device with a seal 13 around the user's face. Therefore, the cited prior art would suggest to one skilled in the art at the time of the invention that the manner to "separate" the device of Quilter would be the same as in Tischer by separating his device at a position which would provide the face sealing member on the second sub-assembly. The fact that in the unmodified Quilter device there is a *permanent* joint between two sub-assemblies at a different position *for ease of manufacture of the unmodified device* doesn't mean – without more - that this would be the position chosen for separation in use in accordance with the different purposes of the teaching of Tischer.

Applicant is aware of two prior art references which teach respirator assemblies with face pieces which are separable in use from a hood or helmet, namely Tischer and the Van Oosten et al patent no. 5078130 acknowledged in the application and disclosed in the IDS of 11 March 2005. In both of these patents, the element adapted to seal against the periphery of the user's face when worn – seal member 123 of Tischer and face seal 35 described at column 4, lines 40-

46 of Van Oosten – is provided as part of the face piece (“second sub-assembly”) and not the hood or helmet (“first sub-assembly”). This suggests a prejudice in the art of separable respirator assemblies to associate the sealing element with the second sub-assembly and is an indicator not of the obviousness but of the patentability of Applicant’s claim 1 where this element is instead comprised in the first sub-assembly.

It is emphasized again that the integrity of the face seal in any such respirator is crucial for isolation of the user’s respiratory passages from the external environment and for conservation of the breathing gas supply and in practice it may not be possible to ensure an adequate fit of the sealing element to the user’s face under all operational conditions when the face piece (“second sub-assembly”) of Tischer or Van Oosten is added, particularly when this must be done in haste. On the other hand with this sealing element positioned on the first sub-assembly (e.g. hood or helmet) in accordance with Applicant’s claim 1 the first sub-assembly can be donned at the outset, prior to a mission, and the necessary time can be taken to ensure that the sealing element is adequately sealed against the user’s face before there is any risk of exposure to the hazardous environment. The second sub-assembly (face piece) can be added quickly when later required to complete the respirator, without compromising the integrity of the face seal. None of the known prior art addresses this problem of the Tischer or Van Oosten arrangement, still less the solution provided by the present invention, and there is not a hint or suggestion in the prior art to teach the skilled person that he should provide the face sealing element on the first sub-assembly to overcome this problem, even if modifying Quilter in accordance with the teaching of Tischer.

The examiner has provided absolutely no reasoning why the person of ordinary skill in the art would modify Quilter to make it separable in a manner that is different than Tischer is separable. It is not permissible for the Examiner to select only that part of Tischer’s teaching on separable sub-assemblies that is convenient for framing a rejection of Applicant’s claim 1 and simply to ignore the rest. For at least these reasons, the examiner’s obviousness rejection cannot be sustained.

**ii. The combination would not result in a device that included the claimed second sub-assembly including an “inlet connectable to a source of breathing gas”**

Claims 1-7 all require a second sub-assembly that includes an inlet connectable to a source of breathing gas. All claims are independently non-obvious because the combination of Quilter and Tischer would instead result in the breathing gas inlet being associated with the first sub-assembly and not the second sub-assembly as claimed.

In Quilter, the oxygen gas inlets 33 or 69 are both associated with cover 15 and not with frontal mask 25. This is an important feature of Quilter because the placement of the gas inlets allows oxygen to be directed into the space between skin 11 and cover 15 in order to accomplish several important functions including sealing edges 13 of skin 11 against the user’s face when the oxygen is on. (*See* Quilter at col. 2, lines 26-32 and col. 3, lines 17-21). Indeed, Quilter teaches away from associating the gas inlet with frontal mask 25. Specifically, Quilter notes that delivering oxygen adjacent to the frontal mask dead space would cause an excessive amount of carbon dioxide to accumulate in the device. (*See* Quilter at col. 3, lines 37-54). Since Quilter teaches one skilled in the art away from associating an oxygen inlet with the face mask as the present application claims require, it again would be illogical to suggest that the combination of Quilter with Tischer would be a device with an oxygen inlet that is associated with the frontal mask (“second sub-assembly”) as claimed.

It is also worth mentioning that if the mask 25 is separated from the cover 15 or skin 11 in the embodiment of Figure 8 of Quilter – which is the only embodiment in that reference where there is an “inlet connectable to a source of breathing gas for supply to the user” on the *mask* (“second sub-assembly”) as required by Applicant’s claim 1 – then it will also result in disconnection of the channel 63 from the space 17 between the skins 11 and 15 (“first sub-assembly”). Thus a separate sealed connection for the oxygen supply would have to be made and broken between the two sub-assemblies whenever the mask is added or removed – an undesirable complication which would disincline the skilled person to modify Quilter as alleged.

**2. Claim 5 remains independently patentable despite the examiner's new grounds of rejection**

The examiner withdrew the grounds given for rejecting claim 5 in the Answer and has issued a new ground for rejecting claim 5. Claim 5 is directed to a first sub-assembly that comprises a flexible hood of air permeable material. The examiner now takes the position that “nylon and cotton” flexible panel 20 of Quilter corresponds to the claimed air permeable hood material. The Applicant respectfully traverses this rejection.

Regarding the new grounds of rejection of claim 5, Quilter specifically states that the materials of skin 11 and panel 15 are “impervious to oxygen” or “gas-proof” and exemplifies the same as sheet rubber or plastic, for example polyvinyl chloride, *reinforced* with nylon, cotton or other fabric (column 2, lines 32-36). Whether or not nylon or cotton is air-permeable on their own is moot, therefore, because that is not what the skins 11 or 15 are made from. The panel 20 over the cut-away parts of these skins at the top is said to be made of nylon fabric (column 2, lines 46-50) but not cotton. So the examiner's allegation that Quilter discloses that flexible panel 20 can be made of cotton is incorrect. The only issue regarding Quilter then is whether one skilled in the art at the time of the invention would understand that the nylon fabric used in Quilter is an air permeable material. After considering Quilter as a whole, it should be clear that flexible panel 20 is not intended to be air permeable.

The examiner alternatively relies upon Tischer for disclosing a woven heat resistant material and concludes that it would have been obvious to use such a material in the Quilter device. The examiner does not indicate that he believes the Tischer material is air permeable, so his rejection is faulty in this regard. However, if the Tischer material were air permeable, one skilled in the art at the time of the invention would not use the material in the Quilter device. As noted above, Quilter specifically states that the materials of skin 11 and panel 15 are “impervious to oxygen” or “gas-proof”. While panel 20 is not specifically stated by Quilter to be gas-impermeable, one skilled in the art would understand that it must be because, as shown by the arrows in Figures 1 and 2 of the reference, the path for oxygen flowing from the feed tube 29 to the user includes the space between the skins 11, 15 and panel 20 to the rear of the rubber ring 47 and if the panel 20 was permeable this would lead to oxygen leakage. Moreover, the purpose



of panel 20 is to provide a single layer of material that rests upon the user's head instead of the dual layers 11 and 15 forming the remaining portions of the hood. Thus there is nothing in Quilter that discloses or suggests that materials other than gas-proof materials are useful. For at least these reasons, claim 5 is independently non-obvious and patentable over the cited prior art.

### **CONCLUSION**

All pending claims are patentable for at least the reasons recited in Applicant's Appeal Brief. In addition, the Applicant has provided additional grounds for rebutting the examiner's obviousness rejection in this Reply to the examiner's Answer that compel the Board to dismiss the examiner's obviousness rejection of application claims 1-7.

Respectfully submitted,

**McDONNELL BOEHNEN HULBERT & BERGHOFF**

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By: /A. Blair Hughes/  
A. Blair Hughes  
Reg. No. 32,901  
312-913-2123